

PNP SILICON AMPLIFIER TRANSISTOR

Qualified per MIL-PRF-19500/357

Devices

2N3634	2N3635	2N3636	2N3637
2N3634L	2N3635L	2N3636L	2N3637L

Qualified Level

JAN
JANTX
JANTXV
JANS

MAXIMUM RATINGS

Ratings	Symbol	2N3634* 2N3635*	2N3636* 2N3637*	Unit
Collector-Emitter Voltage	V_{CEO}	140	175	Vdc
Collector-Base Voltage	V_{CBO}	140	175	Vdc
Emitter-Base Voltage	V_{EBO}	5.0		Vdc
Collector Current	I_C	1.0		Adc
Total Power Dissipation @ $T_A = +25^{\circ}\text{C}^{(1)}$	P_T	1.0		W
@ $T_C = +25^{\circ}\text{C}^{(2)}$		5.0		W
Operating & Storage Junction Temperature Range	T_J, T_{stg}	-65 to +200		$^{\circ}\text{C}$

*Electrical characteristics for "L" suffix devices are identical to the "non L" corresponding devices

1) Derate linearly 5.71 mW/ $^{\circ}\text{C}$ for $T_A > +25^{\circ}\text{C}$

2) Derate linearly 28.6 mW/ $^{\circ}\text{C}$ for $T_C > +25^{\circ}\text{C}$



TO-39* (TO-205AD)
2N3634, 2N3635
2N3636, 2N3637



TO-5*
2N3634, 2N3635
2N3636, 2N3637

*See appendix A for package outline

ELECTRICAL CHARACTERISTICS ($T_A = 25^{\circ}\text{C}$ unless otherwise noted)

Characteristics	Symbol	Min.	Max.	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Current $I_C = 10 \text{ mAdc}$	2N3634, 2N3635 2N3636, 2N3637	$V_{(BR)CEO}$	140 175	Vdc
Collector-Base Cutoff Current $V_{CB} = 100 \text{ Vdc}$ $V_{CB} = 140 \text{ Vdc}$	2N3634, 2N3635	I_{CBO}	100 10	ηAdc μAdc
Emitter-Base Cutoff Current $V_{EB} = 3.0 \text{ Vdc}$ $V_{EB} = 5.0 \text{ Vdc}$		I_{EBO}	50 10	ηAdc μAdc
Collector-Emitter Cutoff Current $V_{CE} = 100 \text{ Vdc}$		I_{CEO}	10	μAdc

2N3634, L, 2N3635, L, 2N3636, L, 2N3637, L JAN SERIES

ELECTRICAL CHARACTERISTICS (con't)

Characteristics	Symbol	Min.	Max.	Unit
ON CHARACTERISTICS (3)				
Forward-Current Transfer Ratio $I_C = 0.1 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 1.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 50 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 150 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 0.1 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 1.0 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 50 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$ $I_C = 150 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}$	2N3634, 2N3636 2N3635, 2N3637	 h_{FE} h_{FE} 	25 45 50 50 30 55 90 100 100 60	150 300
Collector-Emitter Saturation Voltage $I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$ $I_C = 50 \text{ mAdc}, I_B = 5.0 \text{ mAdc}$	$V_{CE(sat)}$		0.3 0.6	Vdc
Base-Emitter Saturation Voltage $I_C = 10 \text{ mAdc}, I_B = 1.0 \text{ mAdc}$ $I_C = 50 \text{ mAdc}, I_B = 5.0 \text{ mAdc}$	$V_{BE(sat)}$	0.65	0.8 0.9	Vdc

DYNAMIC CHARACTERISTICS

Forward Current Transfer Ratio $I_C = 30 \text{ mAdc}, V_{CE} = 30 \text{ Vdc}, f = 100 \text{ MHz}$ $I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 1.0 \text{ kHz}$	2N3634, 2N3636 2N3635, 2N3637 2N3634, 2N3636 2N3635, 2N3637	$ h_{fe} $ h_{fe}	1.5 2.0 40 80	8.0 8.5 160 320	
Small-Signal Short-Circuit Input Impedance $I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 1.0 \text{ kHz}$	2N3634, 2N3636 2N3635, 2N3637	h_{je}	100 200	600 1200	Ω Ω
Small-Signal Open-Circuit Output Admittance $I_C = 10 \text{ mAdc}, V_{CE} = 10 \text{ Vdc}, f = 1.0 \text{ kHz}$		h_{oe}		200	μs
Output Capacitance $V_{CB} = 20 \text{ Vdc}, I_E = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{obo}		10	pF
Input Capacitance $V_{EB} = 1.0 \text{ Vdc}, I_C = 0, 100 \text{ kHz} \leq f \leq 1.0 \text{ MHz}$		C_{ibo}		75	pF
Noise Figure $V_{CE} = 10 \text{ Vdc}, I_C = 0.5 \text{ mAdc}, R_g = 1.0 \Omega$ $f = 100 \text{ Hz}$ $f = 1.0 \text{ kHz}$ $f = 10 \text{ kHz}$		NF		5.0 3.0 3.0	dB

SAFE OPERATING AREA

DC Tests

$T_C = 25^{\circ}\text{C}$, 1 Cycle, $t = 1.0 \text{ s}$

Test 1

$V_{CE} = 100 \text{ Vdc}, I_C = 30 \text{ mAdc}$ 2N3634, 2N3635

$V_{CE} = 130 \text{ Vdc}, I_C = 20 \text{ mAdc}$ 2N3636, 2N3637

Test 2

$V_{CE} = 50 \text{ Vdc}, I_C = 95 \text{ mAdc}$

Test 3

$V_{CE} = 5.0 \text{ Vdc}, I_C = 1.0 \text{ A}$

(3) Pulse Test: Pulse Width = 300 μs , Duty Cycle $\leq 2.0\%$.

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